

# CS 537: Software Metrics

## Objectives

Students will:

- Understand the theoretical aspects of software measurements.
- Demonstrate the knowledge of software metrics.
- Demonstrate the knowledge of using software metrics in software development, software maintenance, and software project management.
- Demonstrate the knowledge of statistical analysis in software measurement.
- Demonstrate the knowledge of developing and calibrating predication systems.
- Demonstrate the knowledge of developing and maintaining a measurement program.

## Prerequisites

CS 487.

## Syllabus

- Theoretical foundations for software metrics.
- Introduction to the measurement theory.
- The representational theory of measurement. Empirical and numerical systems. Representation condition.
- Measurement scales. Meaningfulness in measurement. Operations on measures.
- Data collection and analysis.
- Statistical analysis and tools.
- The Goal-Question-Metric based framework for software measurement.
- Classification of software measures.
- Specification measures.
- Design measures.
- Complexity measures.
- Code related measures.
- Software testing measures.
- Software reliability measures and models.
- Measuring the software development and maintenance processes.
- Experimental design and analysis.
- Software metrics validation.
- Predication systems. Calibration and validation of predication systems.
- Setting up a measurement program.
- Application of software metrics.

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